

## JOYSTICK MODULE



### Description

Lots of robotic projects need a joystick. This module offers an affordable solution to that. The Joystick module is similar to analog joysticks found in gamepads. It is made by mounting two potentiometers at a 90 degrees angle. The potentiometers are connected to a short stick centered by springs.

This module produces an output of around 2.5V from X and Y when it is in resting position. Moving the joystick will cause the output to vary from 0v to 5V depending on its direction. If you connect this module to a microcontroller, you can expect to read a value of around 512 in its resting position (expect small variations due to tiny imprecisions of the springs and mechanism) When you move the joystick you should see the values change from 0 to 1023 depending on its position.

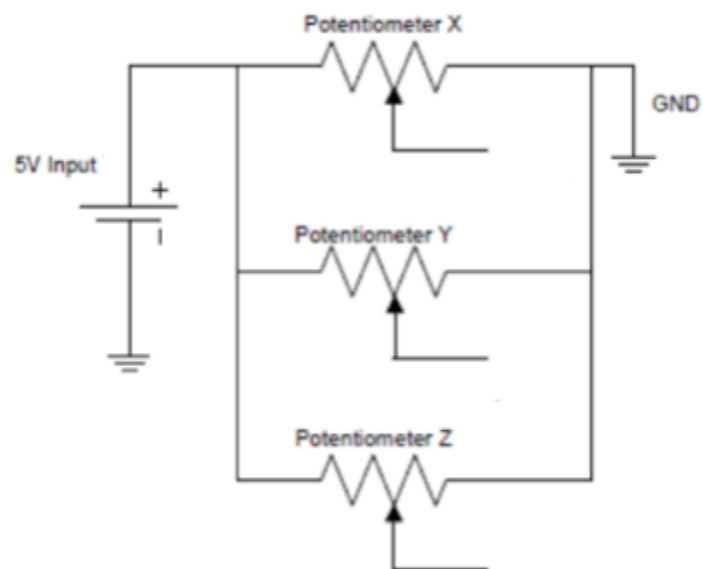
## Specifications

- Directional movements are simply two potentiometers - one for each axis
- Compatible with Arduino interface
- The biaxial XY Joystick Module KY-023 applies ARDUINO
- Dimensions: 1.57 in x 1.02 in x 1.26 in (4.0 cm x 2.6 cm x 3.2 cm)
- 5 Pin
- Color: Black

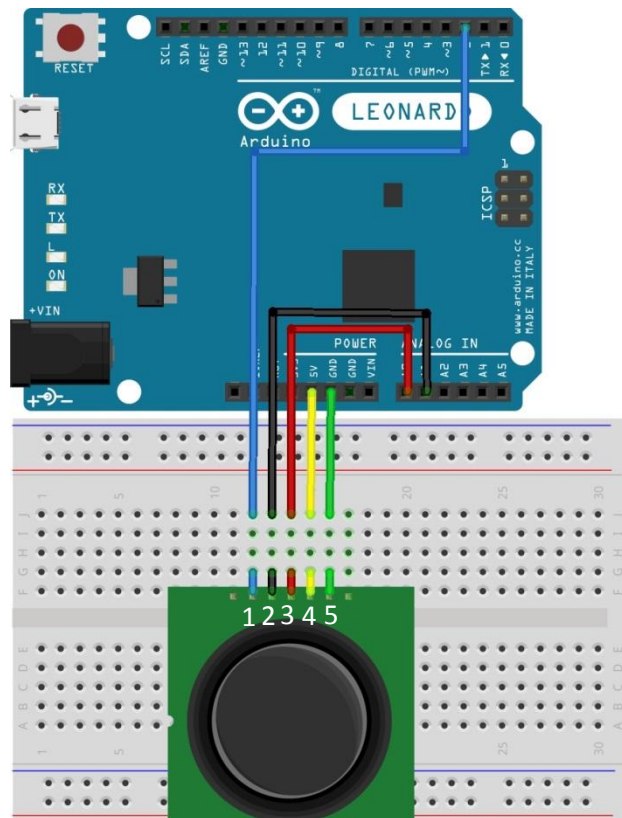
## Pin Configuration

1. GND: ground
2. +5V: 5V DC
3. VRx: voltage proportional to x position
4. VRy: voltage proportional to y position
5. SW: switch pushbutton

## Schematic Diagram



## Wiring Diagram



## Sample Sketch

```
const int SW_pin = 2; // digital pin connected to SW
const int X_pin = 0; // analog pin connected to VRx
const int Y_pin = 1; // analog pin connected to VRy

void setup() {
  pinMode(SW_pin, INPUT);
  digitalWrite(SW_pin, HIGH);
  Serial.begin(9600);
}

void loop() {
  Serial.print("X: ");
  Serial.print(analogRead(X_pin));
  Serial.print(" Y: ");
  Serial.print(analogRead(Y_pin));
  Serial.print(" Z: ");
  Serial.println(digitalRead(SW_pin));
  delay(250);
}
```

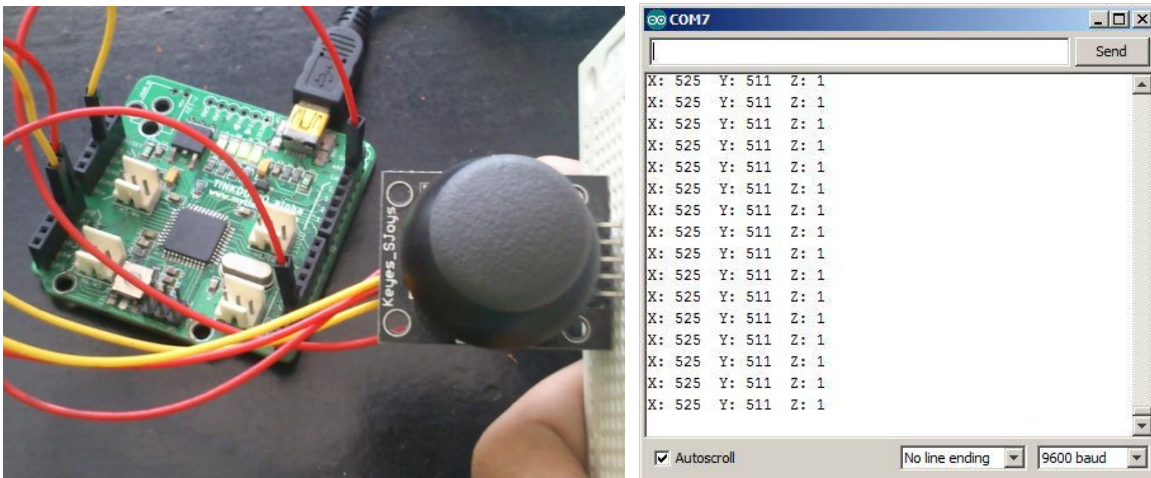
## How to test

The components to be used are:

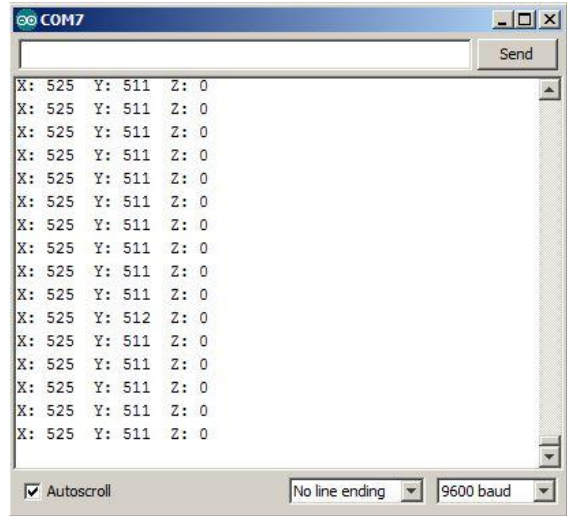
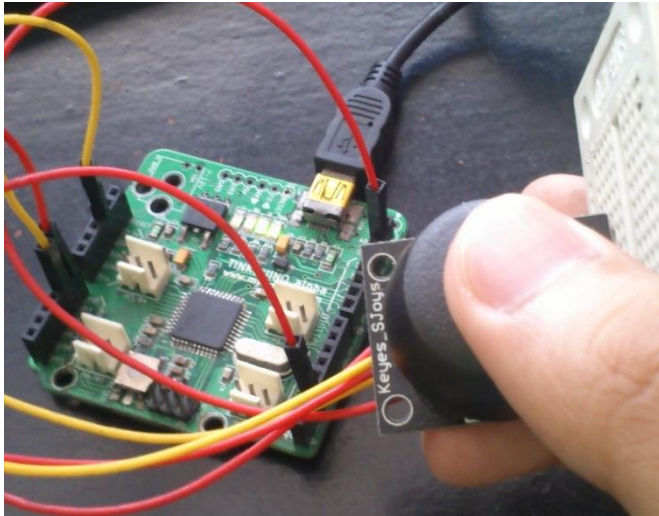
- Microcontroller (any compatible arduino)
  - Joystick module
  - 1 Pin M-M connectors
  - Breadboard
  - USB cable
1. Connect the components based on the figure shown in the wiring diagram using a M-M pin connector. +5V pin is connected to the 5V power supply, GND pin is connected to the GND, the VRx and VRy pins are connected to the analog input pins and the SW pin is connected to the digital I/O pin. Pin number will be based on the actual program code.
  2. After hardware connection, insert the sample sketch into the Arduino IDE.
  3. Using a USB cable, connect the ports from the microcontroller to the computer.
  4. Upload the program.
  5. See the results in the serial monitor.

## Testing results

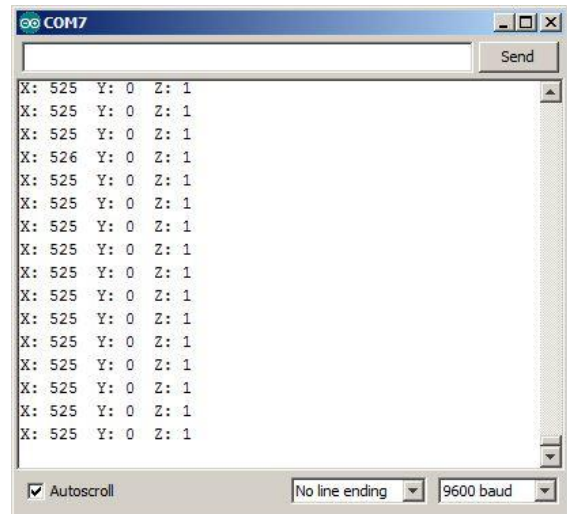
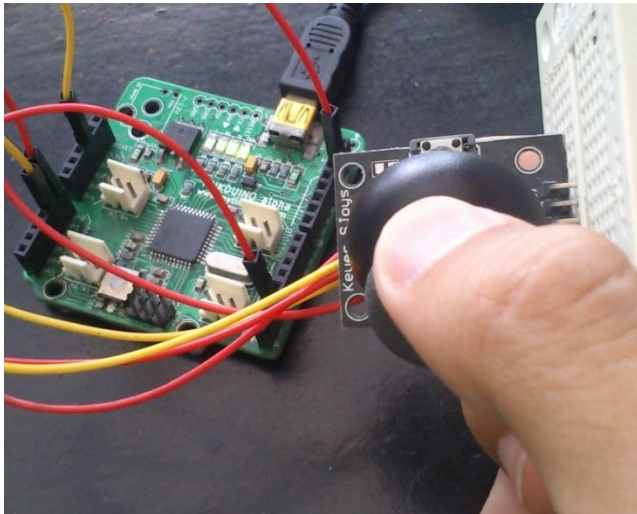
The serial monitor displays the X, Y and Z positions based on the position of the stick.



When the middle button was pressed:



When the stick was moved downward:







When the stick was moved to the right:

